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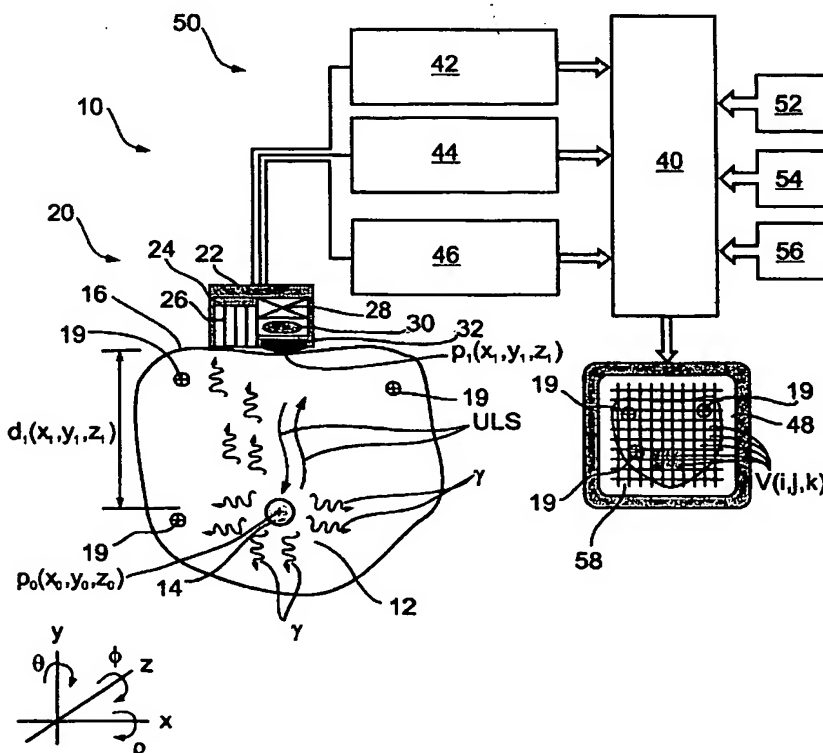
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- (71) Applicant (for all designated States except US): V-TARGET TECHNOLOGIES LTD. [IL/IL]; 3 HaEtgar Street, 39 032 Tirat Hacarmel (IL).
- (72) Inventors; and
(75) Inventors/Applicants (for US only): KIMCHY, Yoav [IL/IL]; 8 Antwerpen Road, 34980 Haifa (IL). AMRAMI, Roni [IL/IL]; 37/2 Yarden Street, 20 692 Yokneam (IL). ZILBERSTEIN, Yoel [IL/IL]; 13 Zrubavel Street, 34 671 Haifa (IL).
- (74) Agent: G. E. EHRLICH (1995) LTD.; 11 Menachem Begin Street, 52 521 Ramat Gan (IL).
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[Continued on next page]

(54) Title: APPARATUS AND METHODS FOR IMAGING AND ATTENUATION CORRECTION



(57) Abstract: Imaging apparatus (10), is provided, comprising a first device, for obtaining a first image, by a first modality, selected from the group consisting of SPECT, PET, CT, an extracorporeal gamma scan, an extracorporeal beta scan, x-rays, an intracorporeal gamma scan, an intracorporeal beta scan, an intravascular gamma scan, an intravascular beta scan, and a combination thereof, and a second modality, selected from the group consisting of a three-dimensional ultrasound, an MRI operative by an internal magnetic field, an extracorporeal ultrasound, an extracorporeal MRI operative by an external magnetic field, an intracorporeal ultrasound, an intracorporeal MRI operative by an external magnetic field, an intravascular ultrasound, and a combination thereof, and wherein the apparatus (10) further includes a computerized system (50), configured to construct an attenuation map, for the first image, based on the second, structural image. Additionally, the computerized system (50) is

configured to display an attenuation corrected first image as well as a superposition of the attenuation-corrected first image and the second, structural image. Furthermore, the apparatus is operative to guide an in-vivo instrument based on superposition.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 3/00

US CL : 250/363.02; 600/407

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 250/363.02, 363.01, 363.03, 363.04, 363.05, 363.08, 363.1; 600/407, 425, 431, 436

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 6,205,347 B1 (MORGAN et al) 20 March 2001 (20.03.2001), see abstract; Columns 5-9; Figure 1.	1-7, 27-32 8-26
X,P — Y,P	US 6,614,453 B1 (SURI et al) 02 September 2003 (02.09.2003), see abstract; Column 4; Figure 2.	8-14 1-7, 15-39
X,P — Y,P	US 6,592,520 B1 (PESZYNSKI et al.) 15 July 2003 (15.07.2003), see Columns 24-26; Figure 1.	43-45 15-26, 33-39, 41, 42
X,P — Y,P	US 6,587,710 B1 (WAINER) 01 July 2003 (01.07.2003), see Columns 7-10; Figure 5.	40-42 33-39
Y,P	US 6,628,983 B1 (GAGNON) 30 September 2003 (30.09.2003), see abstract; Columns 11-16; Figure 1.	1-45



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

OTILIA GABOR

Telephone No. (703) 308-0956

Handwritten signature

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,243,988 A (SIEBEN et al) 14 September 1993 (14.09.1993), see abstract; Figure 1.	40-45
A,P	US 6,628,984 B2 (WEINBERG) 30 September 2003 (30.09.2003), see entire disclosure.	1-45
A	US 6,346,706 B1 (ROGERS et al) 12 February 2002 (12.02.2002), see entire disclosure.	1-45

INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:

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search terms: imaging, PET, SPECT, CT, gamma scan, beta scan, probe, attenuation correction, structural image, nuclear image, X-rays, in-vivo